

Application No. 09/652,058
Amendment "D" dated May 2005
Reply to Office Action mailed March 10, 2005

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) In a digital receiver that is configured to receive a digital video signal representing a plurality of digital video packets and a digital audio signal representing a plurality of digital audio packets, a method of independently timing the presentation of the video information of the digital video packets with respect to the timing of the presentation of the audio information of the digital audio packets so that the video information and the audio information may be accurately timed even if they are from different unrelated programs, the method comprising the following:

an act of receiving a digital video signal and a digital audio signal;

an act of extracting a plurality of digital video packets from the digital video signal;

an act of extracting a plurality of digital audio packets from the digital audio signal;

assigning timestamps at a relatively constant time period to the digital video and audio packets after being received and prior to implementation of a variable time process to the digital packets;

an act of using a video clock to control the timing of the presentation of the video information represented by the plurality of digital video packets;

an act of using an audio clock to control the timing of the presentation of the audio information represented by the plurality of digital audio packets, wherein the audio clock operates separately and independently of the video clock; and

wherein at least one of the video clock or the audio clock speed up or slow down in response to a comparison of a program clock reference within at least one of the digital video packets or digital audio packets, respectively, with a local time at the digital receiver and speed up or slow down the at least one clock in response to said comparison as determined by the timestamp, wherein the comparison occurs after the

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variable time process, and such that the assignment of the timestamps at the relatively constant time period to the digital packets after being received and prior to implementation of a variable time process enables a determination as to whether the video clock or the audio clock should be sped up or slowed down notwithstanding any affects of the variable time process.

2. (Cancelled).

3. (Currently Amended) The method of independently timing the presentation of the video information of the digital video packets with respect to the timing of the presentation of the audio information of the digital audio packets as recited in Claim 2], wherein the act of using a video clock to control the timing of the presentation of the video information represented by the plurality of digital video packets comprises an act of controlling the speed of the video clock based on the comparison of the program clock reference to the a local video time stamp.

4. (Original) The method of independently timing the presentation of the video information of the digital video packets with respect to the timing of the presentation of the audio information of the digital audio packets as recited in Claim 3, further comprising the following:

an act of adding a local audio time stamp to a digital audio packet at a substantially constant time period, packet to packet, after the receiver receives the digital audio packet; and

an act of comparing a program clock reference within the digital audio packet to the local audio time stamp.

5. (Original) The method of independently timing the presentation of the video information of the digital video packets with respect to the timing of the presentation of the audio information of the digital audio packets as recited in Claim 4, wherein the act of using an audio clock to control the timing of the presentation of the audio information represented by the plurality of digital audio packets comprises an act of controlling the speed of the audio clock based on the comparison of the program clock reference to the local audio time stamp.

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6. (Original) The method of independently timing the presentation of the video information of the digital video packets with respect to the timing of the presentation of the audio information of the digital audio packets as recited in Claim 1, further comprising the following:

an act of adding a local audio time stamp to a digital audio packet at a substantially constant time period packet to packet after the receiver receives the digital audio packet; and

an act of comparing a program clock reference within the digital audio packet to the local audio time stamp.

7. (Original) The method of independently timing the presentation of the video information of the digital video packets with respect to the timing of the presentation of the audio information of the digital audio packets as recited in Claim 6, wherein the act of using an audio clock to control the timing of the presentation of the audio information represented by the plurality of digital audio packets comprises an act of controlling the speed of the audio clock based on the comparison of the program clock reference to the local audio time stamp.

8. (Original) The method of independently timing the presentation of the video information of the digital video packets with respect to the timing of the presentation of the audio information of the digital audio packets as recited in Claim 1, wherein the act of using a video clock to control the timing of the presentation of the video information represented by the plurality of digital video packets comprises the following:

an act of comparing the local time at the digital receiver with a program clock reference within one of the digital video packets;

an act of slowing down the video clock if the comparison indicates that the presentation of the video information is ahead of schedule; and

an act of speeding up the video clock if the comparison indicates that the presentation of the video information is behind schedule.

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9. (Original) The method of independently timing the presentation of the video information of the digital video packets with respect to the timing of the presentation of the audio information of the digital audio packets as recited in Claim 8, wherein the act of using an audio clock to control the timing of the presentation of the audio information represented by the plurality of digital audio packets comprises the following:

an act of comparing the local time at the digital receiver with a program clock reference within one of the digital audio packets;

an act of slowing down the audio clock if the comparison indicates that the presentation of the audio information is ahead of schedule; and

an act of speeding up the audio clock if the comparison indicates that the presentation of the audio information is behind schedule.

10. (Previously Presented) The method of independently timing the presentation of the video information of the digital video packets with respect to the timing of the presentation of the audio information of the digital audio packets as recited in Claim 1, wherein the act of using an audio clock to control the timing of the presentation of the audio information represented by the plurality of digital audio packets comprises the following:

an act of comparing the local time at the digital receiver with a program clock reference within one of the digital audio packets;

an act of slowing down the audio clock if the comparison indicates that the presentation of the audio information is ahead of schedule; and

an act of speeding up the audio clock if the comparison indicates that the presentation of the ~~video~~ audio information is behind schedule.

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11. (Currently Amended) A computer program product for use in a digital receiver that is configured to receive a digital video signal representing a plurality of digital video packets and a digital audio signal representing a plurality of digital audio packets, a method of independently timing the presentation of the video information of the digital video packets with respect to the timing of the presentation of the audio information of the digital audio packets so that the video information and the audio information may be accurately timed even if they are from different unrelated programs, the computer-program product comprising a computer-readable medium having computer-executable instructions for performing the following method:

an act of receiving a digital video signal and a digital audio signal;

an act of extracting a plurality of digital video packets from the digital video signal;

an act of extracting a plurality of digital audio packets from the digital audio signal;

assigning timestamps at a relatively constant time period to the digital video and audio packets after being received and prior to implementation of a variable time process to the digital packets;

an act of using a video clock to control the timing of the presentation of the video information represented by the plurality of digital video packets;

an act of using an audio clock to control the timing of the presentation of the audio information represented by the plurality of digital audio packets, wherein the audio clock operates separately and independently of the video clock; and

wherein at least one of the video clock or the audio clock speed up or slow down in response to a comparison of a program clock reference within at least one of the digital video packets or digital audio packets, respectively, with a local time at the digital receiver and speed up or slow down the at least one clock in response to said comparison as determined by the timestamp, wherein the comparison occurs after the variable time process, and such that the assignment of the timestamps at the relatively constant time period to the digital packets after being received and prior to implementation of a variable time process enables a determination as to whether the

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video clock or the audio clock should be sped up or slowed down notwithstanding any affects of the variable time process.

12. (Original) The computer program product as recited in Claim 11, wherein the computer-executable instructions for performing the act of using a video clock to control the timing of the presentation of the video information comprises computer-executable instructions for performing the following:

an act of comparing the local time at the digital receiver with a program clock reference within one of the digital video packets;

an act of slowing down the video clock if the comparison indicates that the presentation of the video information is ahead of schedule;

an act of speeding up the video clock if the comparison indicates that the presentation of the video information is behind schedule.

13. (Original) The computer program product as recited in Claim 12, wherein the computer-executable instructions for performing the act of using an audio clock to control the timing of the presentation of the audio information comprises computer-executable instructions for performing the following:

an act of comparing the local time at the digital receiver with a program clock reference within one of the digital audio packets;

an act of slowing down the audio clock if the comparison indicates that the presentation of the audio information is ahead of schedule; and

an act of speeding up the audio clock if the comparison indicates that the presentation of the audio information is behind schedule.

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14. (Original) The computer program product as recited in Claim 11, wherein the computer-executable instructions for performing the act of using an audio clock to control the timing of the presentation of the audio information comprises computer-executable instructions for performing the following:

an act of comparing the local time at the digital receiver with a program clock reference within one of the digital audio packets;

an act of slowing down the audio clock if the comparison indicates that the presentation of the audio information is ahead of schedule; and

an act of speeding up the audio clock if the comparison indicates that the presentation of the audio information is behind schedule.

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15. (Currently Amended) In a digital receiver that is configured to receive a digital video signal representing a plurality of digital video packets and a digital audio signal representing a plurality of digital audio packets, a method of independently timing the presentation of the video information of the digital video packets with respect to the timing of the presentation of the audio information of the digital audio packets so that the video information and the audio information may be accurately timed even if they are from different unrelated programs, the method comprising the following:

an act of receiving a digital video signal and a digital audio signal;

an act of extracting a plurality of digital video packets from the digital video signal;

an act of extracting a plurality of digital audio packets from the digital audio signal;

assigning timestamps at a relatively constant time period to the digital video and audio packets after being received and prior to implementation of a variable time process to the digital packets; and

a step for independently controlling a video clock that controls the timing of the video presentation speed of the plurality of digital video packets, and an audio clock that controls the timing of the audio presentation speed of the plurality of digital audio packets; ~~and wherein at least one of the video clock or the audio clock compare in response to a comparison between~~ a program clock reference within at least one of the digital video packets or digital audio packets, respectively, with a local time at the digital receiver, ~~and wherein the comparison occurs after the variable time process, and such that the assignment of the timestamps at the relatively constant time period to the digital packets after being received and prior to implementation of a variable time process enables a determination as to whether the video clock or the audio clock should be sped up or slowed down notwithstanding any affects of the variable time process and speed up or slow down the at least one clock in response to said comparison.~~

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16. (Original) The method of independently timing the presentation of the video information of the digital video packets with respect to the timing of the presentation of the audio information of the digital audio packets as recited in Claim 15, wherein the step for independently controlling a video clock and an audio clock comprises the following:

an act of using a video clock to control the timing of the presentation of the video information represented by the plurality of digital video packets; and

an act of using an audio clock to control the timing of the presentation of the audio information represented by the plurality of digital audio packets, wherein the audio clock operates separately and independently of the video clock.

17. (Previously Presented) The method of independently timing the presentation of the video information of the digital video packets with respect to the timing of the presentation of the audio information of the digital audio packets as recited in Claim 15, wherein controlling a video clock comprises the following:

an act of comparing the local time at the digital receiver with a program clock reference within one of the digital video packets;

an act of slowing down the video clock if the comparison indicates that the presentation of the video information is ahead of schedule; and

an act of speeding up the video clock if the comparison indicates that the presentation of the video information is behind schedule.

18. (Previously Presented) The method of independently timing the presentation of the video information of the digital video packets with respect to the timing of the presentation of the audio information of the digital audio packets as recited in Claim 17, wherein controlling an audio clock comprises the following:

an act of comparing the local time at the digital receiver with a program clock reference within one of the digital audio packets;

an act of slowing down the audio clock if the comparison indicates that the presentation of the audio information is ahead of schedule; and

an act of speeding up the audio clock if the comparison indicates that the presentation of the audio information is behind schedule.

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19. (Original) The method of independently timing the presentation of the video information of the digital video packets with respect to the timing of the presentation of the audio information of the digital audio packets as recited in Claim 15, wherein the act of using a video clock to control the timing of the presentation of the video information represented by the plurality of digital video packets comprises the following:

an act of comparing the local time at the digital receiver with a program clock reference within one of the digital video packets;

an act of slowing down the video clock if the comparison indicates that the presentation of the video information is ahead of schedule; and

an act of speeding up the video clock if the comparison indicates that the presentation of the video information is behind schedule.

20. (Previously Presented) A method as recited in Claim 1, wherein the at least one video clock or audio clock comprises an audio clock and wherein the at least one digital video packets or digital audio packets comprises digital audio packets.

21. (Previously Presented) A computer program product as recited in Claim 11, wherein the at least one video clock or audio clock comprises an audio clock and wherein the at least one digital video packets or digital audio packets comprises digital audio packets.

22. (Previously Presented) A method as recited in Claim 15, wherein the at least one video clock or audio clock comprises an audio clock and wherein the at least one digital video packets or digital audio packets comprises digital audio packets.

23. (Previously Presented) A method as recited in Claim 1, wherein the at least one video clock or audio clock comprises a video clock and wherein the at least one digital video packets or digital audio packets comprises digital video packets.

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24. (Previously Presented) A computer program product as recited in Claim 11, wherein the at least one video clock or audio clock comprises a video clock and wherein the at least one digital video packets or digital audio packets comprises digital video packets.

25. (Previously Presented) A method as recited in Claim 15, wherein the at least one video clock or audio clock comprises a video clock and wherein the at least one digital video packets or digital audio packets comprises digital video packets.

26. (New) A method as recited in claim 1, wherein the comparison of the program clock reference and the local time is performed a plurality of times per second.

27. (New) A method as recited in claim 1, wherein the digital video signal and the digital audio signal that are received correspond to different programming.